This application has been carefully reviewed in light of the Office Action dated December 24, 2008. Claims 1, 2, 6 to 8, 12 to 14 and 16 are in the application, with Claims 1, 6, 8, 12 and 13 being independent. Claims 1, 6 to 8 and 12 to 14 have been amended. Reconsideration and further examination are respectfully requested.

Claims 1, 6 to 8 and 12 to 14 were rejected under 35 U.S.C. § 112, second paragraph, for alleged indefiniteness. This rejection is respectfully traversed with respect to Claim 14, which does not recite "means". For remaining Claims 1, 6 to 8, 12 and 13, the term "means for" has been replaced with "unit (or units) configured to". Reconsideration and withdrawal of this rejection are therefore respectfully requested.

Claims 1, 2, 6 to 8, 12 to 14 and 16 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 6,151,457 (Kawamoto) in view of U.S. Patent No. 5,533,175 (Lung) and U.S. Patent No. 4,413,275 (Horiuchi). These rejections are respectfully traversed.

Independent Claim 1 as amended generally concerns a printing system including an information processing apparatus which outputs print data and a printing apparatus which receives the print data from the information processing apparatus and prints a color image on a sheet. The information processing apparatus includes a storage unit configured to store a plurality of tables for defining a set of dither matrix patterns used for character/line image and halftone image for each color component, a designation unit configured to designate a table among the plurality of tables, and a generation unit configured to generate image data for respective printing color components of an image based on data to be print-outputted delivered from higher processing and quantizing the generated image data for respective printing color components using dither matrixes

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specified by the table designated by the designation unit. The information processing apparatus further includes a coding unit configured to compress-encode the quantized image data for the respective printing color components generated by the generation unit, and a notification unit configured to predict coded data amounts for the respective printing color components based on the table designated by the designation unit and the sizes of halftone image areas and character/line image areas included in the respective printing color components, generating memory allocation ratio information based on a ratio of the predicted coded data amounts for the respective printing color components coded by the coding unit and notifying the printing apparatus of the memory allocation ratio information so that the printing apparatus allocates memory areas for respective color components. In addition, the information processing apparatus includes an output unit configured to, after the notification unit notifies the printing apparatus of the memory allocation ratio information, output the coded image data of the respective printing color components coded by the coding unit to the printing apparatus. The printing apparatus includes a reception buffer, a memory allocation unit configured to receive the memory allocation information notified by the notification unit and allocating, in accordance with the received memory allocation ratio information, memory areas for respective color components in the reception buffer so that the memory sizes of each memory areas correspond to ratios of the predicted coded data amounts for the respective printing color components, and a receiving unit configured to, after the memory allocation unit allocates memory areas, receive coded image data for respective color components and storing the received coded image data of respective color components into respective allocated memory areas. The printing apparatus further includes plural decoding units, independently provided for the respective

printing color components, configured to decode coded data stored in the memory areas to image data, and a printing unit configured to print the image data for respective color components decoded by the plural decoding units on a sheet.

Thus, among its many features, Claim 1 provides for predicting coded data amounts for respective printing color components based on a designated table and the sizes of halftone image areas and character/line image areas included in respective printing color components. The applied references of Kawamoto, Lung and Horiuchi are not seen to disclose or suggest at least this feature.

The Office Action at page 9 acknowledges that Kawamoto and Lung do not disclose the foregoing claimed feature. However, the Office Action cites to column 1, lines 41 to 57 of Horiuchi for this alleged disclosure. Applicant respectfully disagrees.

The cited portion of Horiuchi is seen to disclose that in the case of printing color images having half-tones and hues such as color photographs, it is necessary to be able to reproduce picture images with half-tones and hues closely similar to the original in at least sixteen steps of gradations. A drop-on-demand type of ink-jet head, whereby ink dots can be varied in size in accordance with voltages applied, is suitably used in general. In this type of ink-jet head, ink drops are practically limited from 100 to 180μ in size, so that images with half-tones in sufficient steps of gradation are hardly obtainable. To avoid the problem described above, the number of ink dots appearing on a dot matrix having n possible positions in the row and m possible position in the column (n and m being integers) for one picture element can be varied, so as to reproduce images with half-tones in a sufficiently large number of steps of gradation.

The Office Action appears to compare the claimed prediction of coded data amounts with the Horiuchi's generation of a half-tone image. However, Horiuchi is not seen to disclose or suggest that its half-tone image is generated based on the sizes of halftone image areas and character/line image areas in respective printing color components.

Accordingly, Horiuchi is not seen to disclose or suggest predicting coded data amounts for respective printing color components based on a designated table and the sizes of halftone image areas and character/line image areas included in respective printing color components.

Claim 1 is therefore believed to be allowable over the applied references.

In addition, each of independent Claims 8 and 14 provide at least for predicting coded data amounts for respective printing color components based on a designated table and the sizes of halftone image areas and character/line image areas included in respective printing color components. Accordingly, Claims 8 and 14 are believed to be allowable over Kawamoto, Lung and Horiuchi for at least the above-discussed reasons.

Independent Claim 6 generally concerns a printing system including an information processing apparatus which outputs print data and a printing apparatus which receives the print data from the information processing apparatus and prints a color image on a sheet. The information processing apparatus includes a storage unit configured to store a plurality of tables for defining a set of dither matrix patterns used for character/line image and halftone image for each color component, a designation unit configured to designate a table among the plurality of tables, and a generation unit configured to generate

image data for respective printing color components of an image based on data to be print-outputted delivered from higher processing and quantizing the generated image data for respective printing color components using dither matrixes specified by the table designated by the designation unit. The information processing apparatus further includes a coding unit configured to compress-encode the quantized image data for the respective printing color components generated by the generation unit, and a notification unit configured to calculate code data amounts for the respective printing color components by counting data amounts of the quantized halftone image areas and character/line image areas for the respective printing color components in accordance with the table designated by the designation unit, generating memory allocation ratio information based on a ratio of the calculated coded data amounts for the respective printing color components and notifying the printing apparatus of the memory allocation ratio information so that the printing apparatus allocates memory area for respective color components. In addition, the information processing apparatus includes an output configured to, after the notification unit notifies the printing apparatus of the memory allocation ratio information, output the coded image data of the respective printing color components coded by the coding unit to the printing apparatus. The printing apparatus includes a reception buffer, a memory allocation unit configured to receive the memory allocation information notified by the notification unit and allocating, in accordance with the received memory allocation ratio information, memory areas for respective color components in the reception buffer so that the memory sizes of each memory areas correspond to ratios of the predicted coded data amounts for the respective printing color components, and a receiving unit configured to, after the memory allocation unit allocates memory areas, receive coded image data for

respective color components and storing the received coded image data of respective color components into respective allocated memory areas. The printing apparatus further includes plural decoding units, independently provided for the respective printing color components, configured to decode coded data stored in the memory areas to image data, and a printing unit configured to print the image data for respective color components decoded by the plural decoding units on a sheet.

Thus, among its many features, Claim 6 provides for calculating code data amounts for the respective printing color components by counting data amounts of quantized halftone image areas and character/line image areas for respective printing color components in accordance with a designated table.

The applied references of Kawamoto, Lung and Horiuchi are not seen to disclose or suggest at least this feature, for reasons similar to those discussed above.

Claim 6 is therefore believed to be allowable over the applied references.

In addition, independent Claim 12 provides at least for calculating code data amounts for the respective printing color components by counting data amounts of quantized halftone image areas and character/line image areas for respective printing color components in accordance with a designated table. Accordingly, Claim 12 is believed to be allowable over Kawamoto, Lung and Horiuchi for at least the above-discussed reasons.

The other claims in the application are each dependent from the independent claims and are believed to be allowable over the applied references for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

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No other matters being raised, it is believed that the entire application is fully in condition for allowance, and such action is courteously solicited.

No fees are believed due; however, should it be determined that additional fees are required, the Director is hereby authorized to charge such fees to Deposit Account 06-1205.

Applicants' undersigned attorney may be reached in our Costa Mesa, California office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

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